Calibrators

IAU WG meeting on optical interferometry
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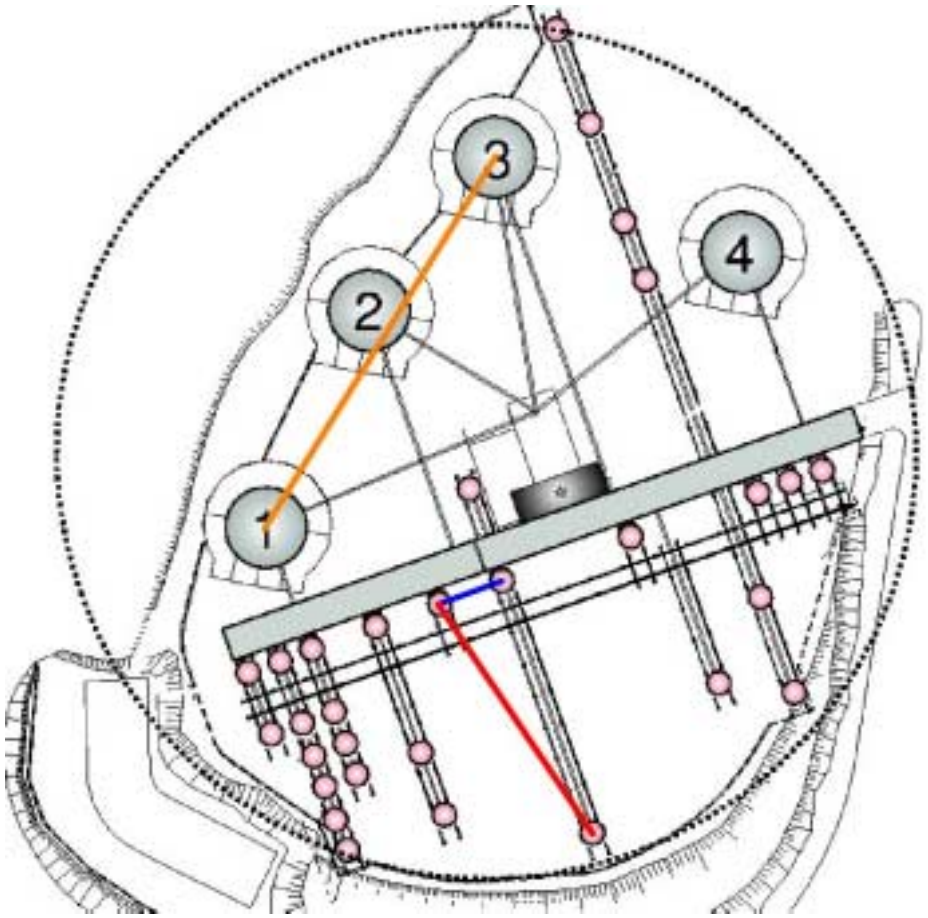
- **The ESO VLTI Calibrators Program**
- **2nd VLTI Calibrators meeting, Florence, June 10-11, 2002**
- **International Collaboration**

The ESO VLTI calibrators program

- Common project between ESO and NEVEC
- People: Isabelle Percheron (NEVEC), Andrea Richichi (ESO Garching), Markus Wittkowski (ESO Paranal), and others
- Available tools/data: VLTI Input Catalogue; CHARM (Richichi & Percheron A&A 386, 492, 2002); Visitools; VLTI Visibility Calculator; DENIS pointed observations; VINCI DRS and IDL data analysis
- Observations: VINCI observations since March 2001; P70 VINCI/SID program
- Goal: Establish a network of calibrator measurements with an accuracy high enough to fully exploit the different VLTI instruments.

VINCI Observations (03/2001-06/2002)



Dates, baselines, observations determined by the Commissioning Plan

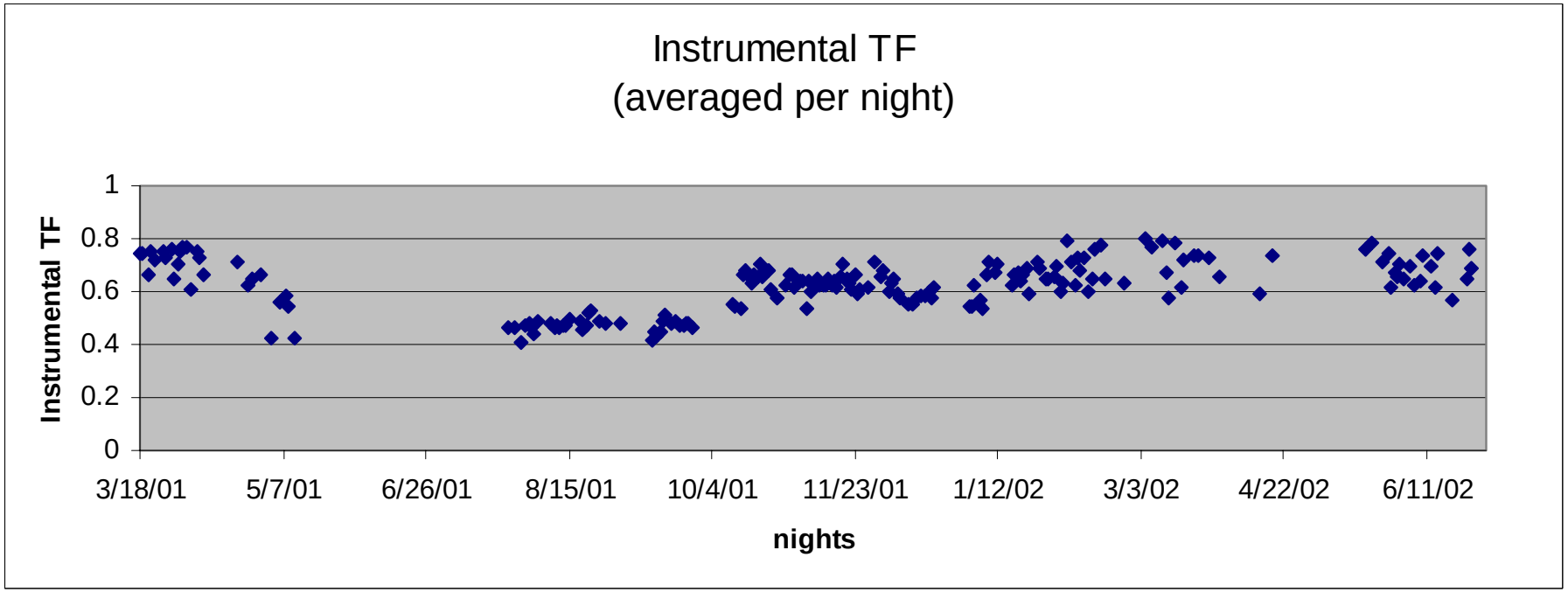
Baseline	nights	calibrators	Batches
E0-G0 (16m)	171	38	2388
E0-G1 (66m)	86	42	1304
U1-U3 (102m)	12	17	214
U2-U3 (47m)	1	1	3

80 Calibrators have been observed between March 18, 2001 and June 28, 2002.

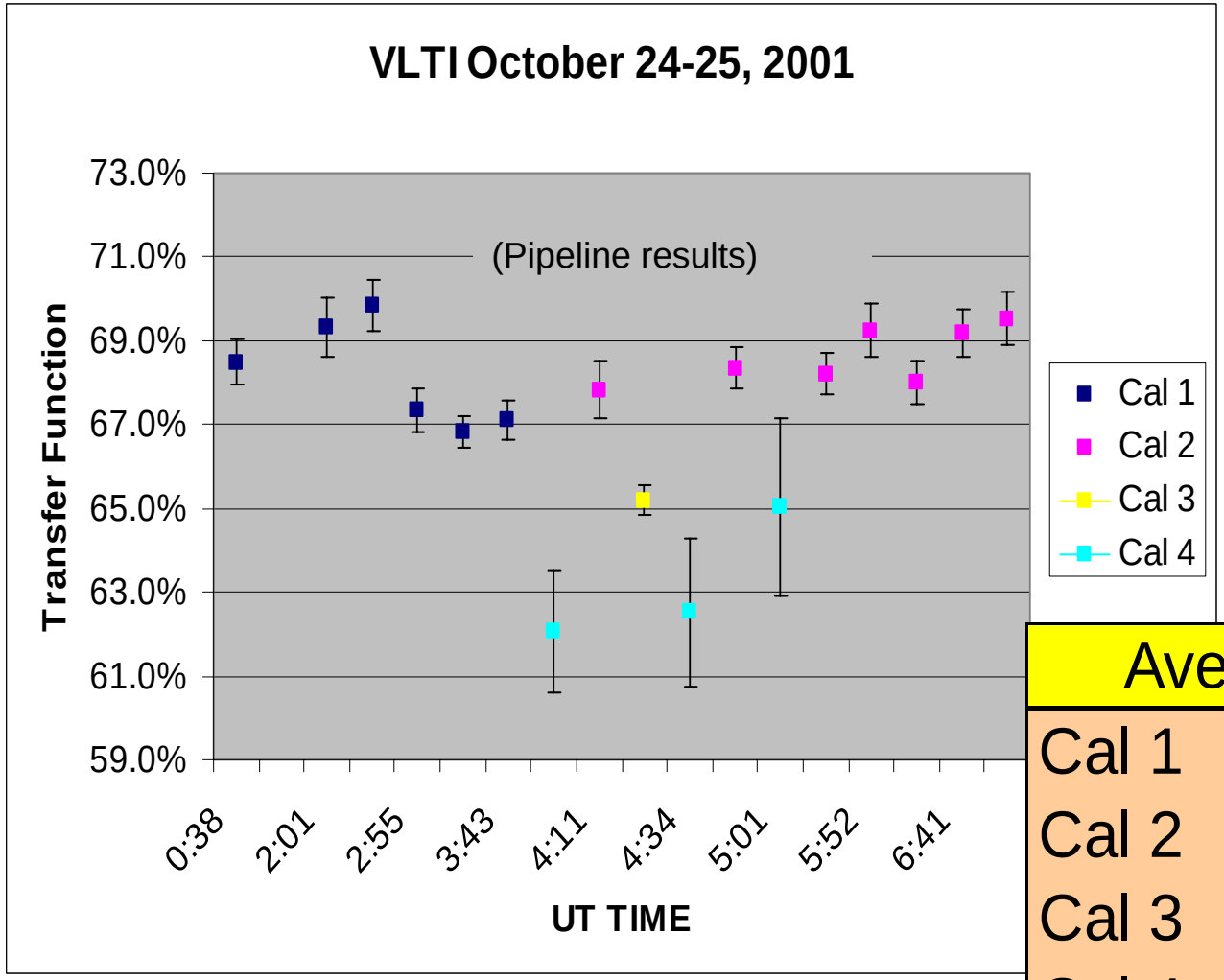
Stability of the measured transfer function

- Instrumental effects
- Atmospheric effects
- Data reduction problems (biases)
- Adopted calibrator diameters

Transfer Function stability



Transfer function stability



Aver.	**67.3%**	**2.3%**
Cal 1	**67.7%**	**0.2%**
Cal 2	**68.6%**	**0.2%**
Cal 3	**65.2%**	**0.4%**
Cal 4	**62.8%**	**1.0%**

The ESO VLTI calibrator list

- Unique list for all instruments.
- Centrally managed.
- Format has been defined.
- Web-based Calibrators selection tool (prototype exists).
- First preliminary calibrator list with 139 objects (80 observed) for VINCI/Sids. Includes Cohen/Borde objects.
- Refinement of adopted diameters based on progressing observations.
- Extension for MIDI, AMBER, ATs, UTs,…

Format of the calibrator list

- Name
- Coordinates
- Epoch
- Proper Motions
- V,R,J,H,K,L,M,N,Q
- Spectral Type
- Luminosity class
- Primary/ Secondary calibrator flag
- Source diameter and error
- Type of source diameter (e.g. UD@K)
- Wavelength-independent diameter and error (Rosseland mean)
- Teff, logg, z, mass
- Vsini, V_rad
- Parallax and error
- Instrument/mode (quality) flags
- Link to a detailed file

The next steps

- Data reduction of all Sid. VLTI/VINCI calibrator data (March 2001-June 2002) and refinement of diameter values. First issue of a VLTI calibrators list.
- Web-based selection tool.
- Extension to UTs, ATs, MIDI, AMBER.

2nd VLTI Calibrators meeting, Florence, June 10-11, 2002

- Representants from ESO, JMMC, NEVEC, AMBER, (MIDI)
- ESO-NEVEC WP
- ESO-NEVEC activities
- AMBER activities
- (MIDI activities)
- Demos of VLTI visibility calculator, CHARM,…
- JMMC activities
- Revised calibrators plan.
- Format for calibrator list.
- Discussions.

AMBER activities

- Work on calibrators is not been actively done.
- Use of VINCI calibrator list and JMMC tools.
- Problems: Spectroscopic modes -> O stars, solar analogues. No scientific use of siderostats.

JMMC activities

- Scientific and Technical groups on calibrators.
- Goals: Build a **dynamical catalog** of stars giving all useful informations for the selection of calibrators. Develop a **specific selection tool** to find the most adapted to the requirement of the astrophysical program. Possibility to access to Primary Calibrators(**Catalog of measured stars**).

JMMC activities

- Online interface with ASPRO (definition of angular distance to the scientific target, magnitudes, spectral type).
- Online interface with CDS (output of name, position, proper motion, parallax, Sp.T., LumClass, Flag for multiplicity, magnitude, vrad, angular diameter (measured for primary calibrators, estimated for Secondary Calibrators)
- Calibrator selection tool (visibility accuracy needed, configuration, selection criteria)

MIDI activities

- List of potential calibrators based on photometric data. 500 potential calibrators have been selected using IRAS data. Most objects have been observed in JHKL photometry. 350 objects have photometry from Geneva observatory photometric system. Optical photometry has been observed on 75 objects at La Palma.
- Estimated diameters at 10mum.
- Modeling analysis of LD effect.
- 25 TIMMI2 spectra will be processed.

Florence meeting, conclusion/action items

- Discussion of the web page format
- Deduction of seeing/coherence time parameters from VINCI PA/PB
- Filtering of data by quality filters
- Procedure for optimal fitting of TF
- First issue of VLTI calibrator list (Nov.)

International collaboration

- Euro-Interferometry
- IAU WG